

Attorney Docket No. : LUKP:115US
Appl. No. 10/711,225
Amdt. dated June 22, 2005
Reply to Office Action of February 23, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

Claim 1 (currently amended): A method for adapting clutch characteristics in a vehicle having a twin-clutch system (PSG) that comprises in a first branch having a first clutch (A) and a first partial transmission (iA) mounted downstream thereof, and in a second branch having a second clutch (B) and a second partial transmission (iB) mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, it being possible to connect the first and second branches operatively arranged for connection to the an engine (M) on the an input side and to the vehicle wheels (F) of [[a]] the vehicle on the an output side, and the first clutch (A) being operated by a first clutch actuating mechanism (KA) and the second clutch being operated by a second clutch actuating mechanism (KB), wherein said method comprising the step of:

executing a zero correction of the a displacement measurement of the first and/or second clutch actuating mechanism (KA; KB) is carried out according to a predetermined strategy as a function of predetermined criteria.

Claim 2 (currently amended): ~~The method as described in Claim 1, wherein, when the vehicle is traveling, the active first clutch (A) or the active second clutch (B) is transmitting a torque and the gear is disengaged in the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream of the inactive second clutch (B) or the inactive first clutch (A), the zero correction is carried out on the first clutch (A) and on the second clutch (B). A method for adapting clutch characteristics when a vehicle is moving, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the steps of:~~

- (a) transmitting a torque from the engine to the vehicle wheels via an active clutch mounted upstream from an engaged gear, wherein said active clutch is the first or the second clutch, the remaining clutch is an inactive clutch, said engaged gear, depends upon the active clutch selection and is gear A or gear B, the remaining gear is a disengaged gear; and,
- (b) executing a zero correction on the first and second clutches.

Claim 3 (currently amended): ~~The method as described in Claim 1, wherein when the vehicle is traveling, the active first clutch (A) or the active second clutch (B) is transmitting a torque and the gear is engaged in the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream of the inactive second clutch (B) or the inactive first clutch (A), the gear is disengaged and thereafter the zero correction of the first clutch (A) and the second clutch (B) is carried out, and the same gear of the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream of the inactive second clutch (B) or the inactive first clutch (A), is re-engaged. A method for adapting clutch characteristics when a vehicle is moving, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the steps of:~~

- (a) transmitting a torque from the engine to the vehicle wheels via an active clutch, wherein said active clutch is the first or the second clutch, the remaining clutch is an inactive clutch, said gear A and gear B are engaged, an active gear is downstream from said active clutch, said active gear is gear A or gear B, and an inactive gear is downstream from said inactive clutch, said inactive gear is gear A or gear B;
- (b) disengaging said inactive gear;
- (c) executing a zero correction on the first and second clutches; and,
- (d) re-engaging said inactive gear.

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Claim 4 (currently amended): ~~The method as described in Claim 1, wherein, when the vehicle is stationary and the gears are disengaged in the first partial transmission (iA) and the second partial transmission (iB), which are mounted downstream of the first clutch (A) or the second clutch (B), the zero correction of the first clutch (A) and the second clutch (B) is carried out. A method for adapting clutch characteristics when a vehicle is stationary, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, said gears A and B disengaged, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the step of:~~

(a) executing a zero correction on the first and second clutches.

Claim 5 (currently amended): ~~The method as described in Claim 1, wherein when the vehicle is stationary, the gear in the first partial transmission (iA) or the second partial transmission (iB), which is mounted downstream of the first clutch (A) or the second clutch (B), is disengaged and the gear in the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream of the second clutch (B) or the first clutch (A), is engaged, the zero correction of the first clutch (A) or the second clutch (B) is carried out, the gear of the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream of the inactive second clutch (B) or the inactive first clutch (A), is disengaged, the zero correction of the second clutch (B) or the first clutch (A) is carried out and, finally, the same gear of the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream from the second clutch (B) or the first clutch (A), is re-engaged. A method for adapting clutch characteristics when a vehicle is stationary, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, an engaged gear and a disengaged gear, said engaged gear is gear A or gear B, and the remaining gear is said disengaged gear, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the steps of:~~

- (a) executing a zero correction on a disengaged clutch, wherein said disengaged clutch is upstream from the disengaged gear and is the first clutch or the second clutch, the remaining clutch is an engaged clutch;
- (b) disengaging said engaged gear;
- (c) executing a zero correction on said engaged clutch; and,
- (d) re-engaging said engaged gear.

Claim 6 (currently amended): ~~The method as described in Claim 1, wherein when the vehicle is stationary, the gear of the first partial transmission (iA) or the second partial transmission (iB), which is mounted downstream of the first clutch (A) or the second clutch (B), is disengaged and the gear of the second partial transmission (iB) or the first partial transmission (iA), which is mounted downstream of the second clutch (B) or the first clutch (A), is engaged, the disengagement of the gear of the second partial transmission (iB) or the first partial transmission (iA) is carried out, the zero correction of the first clutch (A) and the second clutch (B) is carried out, and thereafter the same gear of the second partial transmission (iB) or the first partial transmission (iA) is re-engaged. A method for adapting clutch characteristics when a vehicle is stationary, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, an engaged gear and a disengaged gear, said engaged gear is gear A or gear B, and the remaining gear is said disengaged gear, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the steps of:~~

- (a) disengaging said engaged gear;
- (b) executing a zero correction on the first and second clutches; and,
- (c) re-engaging said engaged gear.

Claim 7 (currently amended): ~~The method as described in Claim 1, wherein when the vehicle is stationary, the gears in the first partial transmission (iA) and the second partial transmission (iB), which are mounted downstream of the first clutch (A) and the second clutch (B), are engaged, the disengagement of the gear of the first partial transmission (iA) or second partial transmission (iB), which is mounted downstream of the first clutch (A) or the second clutch (B), occurs, the zero correction of the first clutch (A) or the second clutch is carried out and the same gear of the first partial transmission (iA) or the second partial transmission (iB) is re-engaged, the gear of the second partial transmission (iB) or first partial transmission (iA), which is mounted downstream of the second clutch (B) or the first clutch (A), is disengaged, the zero correction of the second clutch (B) and the first clutch (A) is carried out, and the same gear of the second partial transmission (iB) or the first partial transmission (iA) is re-engaged. A method for adapting clutch characteristics when a vehicle is stationary, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, said gears A and B engaged, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the steps of:~~

- (a) disengaging a first disengaged gear, wherein said first disengaged gear is gear A or gear B, the remaining gear is a second disengaged gear;
- (b) executing a zero correction on a first disengaged clutch, wherein said first disengaged clutch is mounted upstream from said first disengaged gear and is the first clutch or the second clutch, the remaining clutch is a second disengaged clutch;
- (c) engaging said first disengaged gear;

- (d) disengaging said second disengaged gear;
- (e) executing a zero correction on the second disengaged clutch; and,
- (f) engaging said second disengaged gear.

Claim 8 (currently amended): ~~The method as described in Claim 1, wherein when the vehicle is stationary and the gears in the first partial transmission (iA) and the second partial transmission (iB), which are mounted downstream of the first clutch (A) and the second clutch (B), are engaged, the disengagement of the gears in the first partial transmission (iA) and second partial transmission (iB) is carried out and the zero correction of the first clutch (A) and the second clutch (B) is carried out, and the same gears of the first partial transmission (iA) and the second partial transmission (iB) are reinserted. A method for adapting clutch characteristics when a vehicle is stationary, said vehicle having a twin-clutch system that comprises a first branch having a first clutch and a first partial transmission mounted downstream thereof, and a second branch having a second clutch and a second partial transmission mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, said gears A and B engaged, the first and second branches operatively arranged for connection to an engine on an input side and to vehicle wheels of the vehicle on an output side, and the first clutch being operated by a first clutch actuating mechanism and the second clutch being operated by a second clutch actuating mechanism, said method comprising the steps of:~~

- (a) disengaging said gears A and B;
- (b) executing a zero correction on the first and second clutches; and,
- (c) re-engaging said gears A and B.

Claim 9 (currently amended): ~~The method as described in any of Claims 1-8~~ ~~Claim 1,~~ wherein the execution of the zero correction under appropriate operating conditions is repeated at specific time intervals.

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Claim 10 (currently amended): The method as described in Claim 2 or 3, wherein Claim 1, wherein, if the vehicle is traveling and the active first clutch (A) or the active second clutch (B) is transmitting an engine torque, the first clutch (A) or the second clutch (B) is adapted first, depending on whose last successful zero correction was furthest in the past.

Claim 11 (currently amended): The method as described in any of Claims 4-8, wherein Claim 1, wherein, if the vehicle is stationary, the zero correction is carried out on the first clutch (A) or the second clutch (B), depending on whose gear is most probable for starting off.

Claim 12 (currently amended): The method as described in any of Claims 4, 6 or 8, wherein Claim 1, wherein, if the vehicle is stationary, zero corrections for the first clutch (A) and second clutch (B) are always carried out simultaneously.

Claim 13 (currently amended): The method as described in Claim 8, further comprising the step of:

Claim 1, wherein, when the vehicle is stationary, carrying out a sensing point adaptation is carried out, wherein the sensing point adaptation then being is carried out in succession if a gear is engaged in the first partial transmission (iA) and the second partial transmission (iB).

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Claim 14 (currently amended): The method as described in Claims 5 or 6, further comprising the steps of: ~~Claim 1, wherein when the vehicle is stationary a sensing point adaptation is carried out if a gear is engaged in the first partial transmission (iA) or the second partial transmission (iB), which is mounted downstream of the first clutch (A) or the second clutch (B) and no gear is engaged in the second partial transmission (iB) for or the first partial transmission (iA), which is mounted downstream of the second clutch (B) or the first clutch (A), a gear is engaged in the second partial transmission (iB) or in the first partial transmission (iA), and the sensing point adaptation is carried out simultaneously for the first clutch (A) and the second clutch (B)~~

engaging the disengaged gear; and,

carrying out a sensing point adaptation for the first clutch and the second clutch simultaneously.

Claim 15 (currently amended): The method as described in any of Claims 4-8, further comprising the step of:

~~Claim 1, wherein, when the vehicle is stationary, carrying out a sensing point adaptation is carried out in such a manner that the clutch whose last successful sensing point adaptation was furthest in the past is always adapted first.~~

Claim 16 (currently amended): The method as described in any of Claims 4-8, further comprising the step of:

~~Claim 1, wherein, when the vehicle is stationary, carrying out a sensing point adaptation is always carried out on the clutch that is mounted upstream of the partial transmission in which the gear for starting off is most probably engaged.~~

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Claim 17 (currently amended): A device for carrying out the method for adapting the clutch characteristics in the vehicle having the twin-clutch systems (PSG) as described in Claim 1, wherein the twin-clutch system (PSG) comprises in a first branch having a first clutch (A) and a first partial transmission (iA) mounted downstream thereof, and in a second branch having a second clutch (B) and a second partial transmission (iB) mounted downstream thereof, said first and second partial transmissions comprising at least a gear A and at least a gear B, respectively, the first and second branches operatively arranged to be connected on an input side to an engine (M) and on an output side to wheels (F) of the vehicle, the first clutch (A) operable by a first clutch actuating mechanism (KA) and the second clutch (B) by a second clutch actuating mechanism (KB), and a zero correction of the a displacement measurement of the first and/or second clutch actuating mechanism (KA; KB) operatively arranged to be carried out according to a predetermined strategy as a function of predetermined criteria.